

What is claimed is:

1. A method for repairing a defect locus in a nonarticular cartilage tissue of a mammal, the method comprising providing an osteogenic protein in a biocompatible, bioresorbable carrier to the defect locus, thereby inducing the formation of functional replacement cartilage tissue.
2. The method of claim 1, wherein the defect locus is in a fibrocartilaginous tissue.
3. The method of claim 1, wherein the defect locus is in the larynx.
4. The method of claim 1, wherein the defect locus is in the trachea.
5. The method of claim 1, wherein the defect locus is in an intervertebral disc.
6. The method of claim 1, wherein the defect locus is in an interarticular meniscus.
7. The method of claim 1, wherein the defect locus is in the ear, the nose, or a rib.
8. The method of claim 1, wherein the carrier comprises autologous or allogenic tissue.
9. The method of claim 8, wherein the carrier comprises devitalized allogenic cartilage.

10. The method of claim 9, wherein the defect locus is in the larynx.

11. The method of claim 9, wherein the defect locus is in the trachea.

12. The method of claim 9, wherein the defect locus is in an intervertebral disc.

13. The method of claim 9, wherein the defect locus is in an interarticular meniscus.

14. The method of claim 1, wherein the carrier comprises collagen.

15. The method of claim 14, wherein the defect locus is in the larynx.

16. The method of claim 14, wherein the defect locus is in the trachea.

17. The method of claim 14, wherein the defect locus is in an intervertebral disc.

18. The method of claim 14, wherein the defect locus is in an interarticular meniscus.

19. The method of claim 1, wherein the carrier comprises carboxymethylcellulose.

20. The method of claim 19, wherein the carrier further comprises allogenic or autologous blood.
21. The method of claim 19, wherein the defect locus is in the larynx.
22. The method of claim 19, wherein the defect locus is in the trachea.
23. The method of claim 19, wherein the defect locus is in an intervertebral disc.
24. The method of claim 19, wherein the defect locus is in an interarticular meniscus.
25. The method of claim 1, wherein the carrier comprises one or more members selected from the group consisting of hydroxyapatite; alkylcelluloses; poloxamers; gelatins; polyethylene glycols; dextrins; vegetable oils; and polymers of lactic acid, butyric acid, glycolic acid, and combinations thereof.
26. The method of claim 1, wherein the osteogenic protein is OP-1.
27. The method of claim 1, wherein the osteogenic protein is selected from the group consisting of OP-2, OP-3, BMP-2, BMP-3, BMP-4, BMP-5; BMP-6, BMP-9, BMP-10, BMP-11, BMP-12, BMP-13, BMP-14, BMP-15, BMP-3b, DPP, Vg-1, Vgr-1, 60A protein, GDF-1, GDF-2, GDF-3, GDF-5, GDF-6, GDF-7, GDF-8, GDF-9, GDF-10, and GDF-11.
28. The method of claim 1, wherein the osteogenic protein

卷之三

comprises an amino acid sequence having at least 70% homology to the C-terminal 102-106 amino acids, including the conserved seven-cysteine domain, of human OP-1.

29. The method of claim 1, wherein the osteogenic protein comprises an amino acid sequence defined by OPX (SEQ ID NO:3), Generic Sequence 6 (SEQ ID NO:4), Generic Sequence 7 (SEQ ID NO:5), Generic Sequence 8 (SEQ ID NO:6), or Generic Sequence 9 (SEQ ID NO:7).

30. The method of claim 26, wherein the defect locus is in the larynx.

31. The method of claim 26, wherein the defect locus is in the trachea.

32. The method of claim 26, wherein the defect locus is in an intervertebral disc.

33. The method of claim 26, wherein the defect locus is in an interarticular meniscus.

34. The method of claim 1, wherein the osteogenic protein and the carrier are implanted under the perichondrium of the nonarticular cartilage tissue.

35. An implantable device for repairing a defect in a nonarticular cartilage tissue of a mammal, the device comprising an osteogenic protein disposed in a devitalized cartilage.

36. The device of claim 35, wherein the cartilage is autologous or allogenic cartilage.

37. The device of claim 35, wherein the osteogenic protein is OP-1.

38. The device of claim 37, wherein the cartilage is allogenic cartilage.

39. The device of claim 35, wherein the osteogenic protein comprises an amino acid sequence defined by OPX (SEQ ID NO:3), Generic Sequence 6 (SEQ ID NO:4), Generic Sequence 7 (SEQ ID NO:5), Generic Sequence 8 (SEQ ID NO:6), or Generic Sequence 9 (SEQ ID NO:7).

40. An implantable device for repairing a defect in a nonarticular cartilage tissue of a mammal, the device comprising an osteogenic protein disposed in a collagen carrier.

41. The device of claim 40, wherein the osteogenic protein is OP-1.

42. The device of claim 40, wherein the osteogenic protein comprises an amino acid sequence defined by OPX (SEQ ID NO:3), Generic Sequence 6 (SEQ ID NO:4), Generic Sequence 7 (SEQ ID NO:5), Generic Sequence 8 (SEQ ID NO:6), or Generic Sequence 9 (SEQ ID NO:7).

43. An implantable device for repairing a defect in a nonarticular cartilage tissue of a mammal, the device comprising an osteogenic protein disposed in a carboxymethylcellulose carrier.

44. The device of claim 43, wherein the osteogenic protein is OP-1.

PCT/US2009/048260

45. The device of claim 43, wherein the osteogenic protein comprises an amino acid sequence defined by OPX (SEQ ID NO:3), Generic Sequence 6 (SEQ ID NO:4), Generic Sequence 7 (SEQ ID NO:5), Generic Sequence 8 (SEQ ID NO:6), or Generic Sequence 9 (SEQ ID NO:7).

46. The device of claim 43, wherein the carrier further comprises allogenic or autologous blood.

47. A method of promoting chondrogenesis at a defect locus in a mammal, the method comprising providing an osteogenic protein in a devitalized cartilage carrier to the defect locus, wherein the cartilage carrier is configured to fit into the defect locus.

48. The method of claim 47, wherein the cartilage carrier is a cartilage allograft.

49. The method of 47, wherein the osteogenic protein comprises an amino acid sequence having at least 70% homology to the C-terminal 102-106 amino acids, including the conserved seven-cysteine domain, of human OP-1.

50. The method of claim 49, wherein the osteogenic protein is human OP-1.

51. A method of repairing a defect locus in a ligament in a mammal, the method comprising providing an osteogenic protein in a biocompatible, bioresorbable carrier to the defect locus, thereby inducing the formation of functional replacement ligament tissue.

52. The method of claim 51, wherein the defect locus is in the larynx.

53. The method of claim 51, wherein the carrier comprises cartilage.

54. The method of claim 51, wherein the carrier comprises carboxymethylcellulose.

55. The method of claim 51, wherein the carrier comprises collagen.

56. The method of claim 51, wherein the osteogenic protein is OP-1.